GEOLOGY *Today*

INDEX, Volume 15, 1999

Abbot's Oak Fault 228
Aberystwyth, still geology at (let.) 22
Acervularia ananas 189
Acetocina lepta 199
Acraman crater 125
Acropora 189
  growth rates 190
Adelophthalmus imhofi 216, *216*
Advances 20–1, 58, 140–1, 180–3, 215–16
Agassiz Rock 168
aggregates
  aggregating the data 4
  taxed to cover environmental costs of quarrying 43
Ainthorpe slide 217–20
  1929 ditch 218, 220
  1993 ditch 220
    causing problems 219
    increases probability of sliding 219
  cause and effect 219–20
  damage by motorbike trials 218
  geology of 217–18
    subsidiary slumps 218
    translational movement 218
  reactivation of 218
  temporarily stable 219
  timetable of events 218–19
  water problem, options for dealing with 220
Alaska, volcanic plume warnings 2
algae, mollusc-abraded 199–200
The Alhambra, Granada, moving downhill 126
all-terrain bicycle geomagnetic mapping system (ATBGMS) 45
Allosaurus 238
Allosaurus fragilis 127
  found in Portugal 215–16
almandine 34, 35, 36
Alpe Arami garnet lherzolite, retaining memory of pre-Alpine conditions 181
alpha-sulphur 157
  formed by supergene processes 159
Alveolites 192
Amargosa Desert, Nevada, use of ATBGMS 45
Americas-Europe split 127
Amir Formation 19–20
ammonites, eaten by plesiosaurs 2
amorphous sulphur 158
amphibian trackways 133
amural structure (def.) 190
analemmatic sundial 174–5
Andes, southern, tephra from in Falkland Islands peat 62–3
andradite 34
  demantoid and melanite 36
ANDREWS, P.
  Lake Taupo's lake-bed explored at last 12–13
  Micromount Symposium 206
  mud, new power and an Australian underpinning 172–3
anemones
  survived the Permian crisis 185
  see also corals
Angopora hisingeri 188
Antarctica, pleiosaurs and mosasaurs 163
anticlines, underlying the Yangtze Gorges 31
Apatosaurus 216
aqueduct, Roman, River Frome to Dorchester 47
Arachnophyllum murchisoni 187, 188
Arcadia Formation 125
Archaeopteryx, running take-off now favoured 177–8
Argentinosaurus 125
Argutastraea 192
Armageddon, quoted 3
arthropoda, among Charnian fossils 232
Ashover Grits 177
Assissi, Italy, no further state assistance for earthquake repairs 6
Astarte, south Alaska 140–1
asterism, in garnets 35
asteroid impacts
  and end-Permian mass extinction 16
  global and lesser 58
asteroids
  1998 OX4, possible Earth collider, now lost 162–3
  1999 AN10, will now miss the Earth 163
  Braille
    chip off Vesta 202
    passed by *Deep Space 1* 163
  the Torino scale 165
asthenosphere, mobility of 21
atmosphere
  Archean 141
  rarified, Jupiter satellites 141
  tenuous, Moon and Mercury 216
Aulopora 187, *187*, 190
Australia
  giant brachiopods 19
  life forms comparable to those in Martian meteorite 87–8
  why *Geyornis newtoni* died out 100
Australian Geological Survey, to lose funding 127
autobrecciation 224, *224*
Avrona Formation, fluviatile sand sequence 20
Axel Heiberg Island
  fossil forest 206–7
  geological permits mix-up 206–7
AYRTON, S., another Strahler (let.) 105

BADHAM, N., even older oil 142
Baluchitherium 125
banded-iron formations 141
bank notes
  British, planetary science shock horror 127
  terrellas on 126–7
Barbatia 199
Bardon Breccia 225, *226*
Bardon Hill Quarry, peperite texture *226*
Bardon Hill volcanic complex *222*, 225
barnacles, boring 198–9
Baryonyx walkeri 59, *237*
basalt, effect of transformation to perovskite 137
basalt (greenstone) 154, 155
beach geology, Portreath 153–4
  black-grey heavy pebbles 153–4
Beacon Hill Formation *222*, *223*, 224
Beacon Hill, Penrith, what happens there? 13–14
belemnites 23
BENNETT, M.R. *see* DOYLE, P. and BENNETT, M.R.
Benscliffe Breccia 221, *222*, *223*, 224, *226*
Bentham's big stone 203
Bering Strait, time of opening 140–1
BEVINS, R.E. *see* CLEAL, C.J. *et al*
bioherms
  defined 191
  Much Wenlock Limestone *192*
  shallow-water 191–2
biological processes, and native sulphur formation 158–9
biostromes, defined 191
bipedality, theropod dinosaurs 234, 235
bivalves
  burrowing 197
  wood-boring 197
Black Sea
  archaeology of sites round 95
  drowned beaches of 94
  receiving warm saline Mediterranean waters below the cold 94
Black Sea flood 95
Blackbrook Group *222*, *223*, 224
  processes occurring during deposition *226*
Blackbrook Reservoir Formation *222*, *223*
  asymmetric folding 228, *229*
Blackbrookia oaksi 231–2
Bluewater shopping centre, Kent, a wasted opportunity (let.) 141–2
Bogd fault system, seismically active 181
book series, avoid it 11
borers
  non-predatory 198
  requiring protected environment 198
boring, by mechanical abrasion and/or chemical solution 197
borings
  differ from burrows 197
  see also trace fossils, borings
boundary conditions, for palaeoclimate modelling 25, 28
Bourgetia 91
Bourgetia Beds 91–2
Bowerbank, J., on collecting, 1840s style 239–40
BOWLER, S., Geo-networking 98–9, 135–7
Bradgate Formation *222*
Bradgatia linfordensis 231, *231*
Branch Line 40, 79–80, 239–40
Brand Group *222*, *223*
  affinity of uncertain 227–8
Brand Hills Formation *222*, *223*, 228
Brazil, dinosaur footprints, preserve or waste? 6
brick clay 125
Briefing 2–8, 42–50, 82–90, 122–8, 162–6, 202–3
Bristol Heritage in Stone, Eileen Stonebridge 142
British Columbia, nephrite jade in 72, 73–4
British Geological Survey
  1:50 000 Landranger Series, *Dark Peak* (110) and *White Peak* (118 and 119) 97
  Discovering Geology/Fossil Focus
    Crinoids 83
    Echinoids 44
    Plants 44
  Holiday Geology Guides
    Cornish Pebbles 44
    Isle of Wight 83
    Scarborough and Whitby – The Jurassic Coast 44
  photographic archives 135
British Institute for Geological Conservation (BIGC), and GEOSITES 65
British Isles, tephra in 60–2
British Trust Conservation Volunteers 39
building stone
  Portreath 154–5
    construction of inclined railway 155
    micritic limestone 155
    porphyritic elvan 155
    present harbour used local stone 154
    restoration work 155
  Scottish (true) marble 93
Building Stones of Edinburgh, A. McMillan, R. Gillanders and J.A. Fairhurst 175–6
BULL, R., Cheddar Gorge conservation, potentially damaging 50–1
burrow structures, Swithland Formation 232
bus lanes, red rock for 113
Bushveld Complex fails impact tests 17–18
byon, and Mogok rubies 145

Cademan Breccia 225, *226*
Calappa 114
Calappa springeri 115
Calceola 187

Figures and Tables are given in italics.

calcite, in fossil tree trunks 108
calcite veins, ruby and spinel in 144, 147
Caledonian igneous history, potential British GEOSITES 67
Caledonian Orogeny 67
Callianassa 116
Callianassa sensu stricto 116
Callianopsis 116
Callinectes cf. *toxodes 115*
Caloxanthus americanus 114
Caloxanthus ornatus 114, 116
Cambrian Ediacara 16–17
CAMP (Central Atlantic Magmatic Province) 178
Canada
  Axel Heiberg Island, government mix-up 206–7
  Slave craton 18
Cancer 116
cannibalism, coelophysoids 238
carbon-13/carbon-12 ratio 55
carbonate permineralization 109
Carboniferous Limestone *15*, 166
  black, Portreath quayside 155
  North West Province (Garwood) 51
Cardiff, old and new 166–7
  Cader Idris sculpture 166–7
  understanding 'unconformity' 166
Cardisoma guanhumi 115
Cariaco basin, earthquake-induced turbidity flow in action 138
Carmel–Gilboa fault system 3
Carn Brea granite 154
CARNEY, J.N., Revisiting the Charnian Supergroup: new advances in understanding old rocks 221–9
Carnotaurus sastrei 235, *237*
Casineria kiddi 177
catenation 157
celestine 157
Centrichnus 200
Ceratosaurus, bony scutes 235–6
cerioid structure (def.) 190
chalcopyrite 157
Chalk correlation, agreement or not? 213–15
chalk quarries, disused 141–2
Changchengornis 237
Charnia grandi 231, *231*
Charnia masoni 230, *230*
Charnian deposition, likely palaeoenvironmental framework 224
Charnian fossils 231–4
  age 232–3
  biological status 233–4
  discs and disc-like impressions 231–2
  early attribution 230
  frondose colonies, simple or complex 231
  links with Phanerozoic Phyla 233
Charnian Supergroup 221, *222*
  lithological variation *223*, 224
  restricted to Maplewell and Blackbrook groups 228
  stratigraphical succession *223*
Charnian Supergroup revisited 221–9
  age, palaeontology, reassessment of the Brand Group 227–8
  deformation event, age and regional dynamic setting 228–9
  stratified volcaniclastic sequence 221–4
  towards a depositional model *226*, 227
  volcanic complexes – former magmatic centres? 224–6
Charniodiscus concentricus 227, 230, *230*
Charnwood Forest
  anticline dominates basement structure 221
  complete Acadian tectonic history likely 229
  the Precambrian fossils of 230–4
Charnwood Lodge Volcanic Formation *222*, 224, 225, *226*
CHEAPE, H. *see* TAYLOR, M.A.
Cheese Bay Shrimp Bed 177
chemist's bottles to glacial boulders 126
Cheviot Granite 113
Chicxulub structure, mathematical modelling of impact 182
chimneys, extinct, Lake Taupo floor 13
China
  discoveries by geologists 57–8
  The Three Gorges Dam of the Yangtze River, Engineering Geology in China 30–3
China University of Geosciences enters the twenty-first century 194–6
  areas of China used in research 194
  the future 196
  history 195
  the University today 195–6
    Base Classes 196
    computer use 196
    international academic exchanges 196
    present research and teaching programme 195
Chinle Formation 129
Chorhat Sandstone, possible worm burrows 56
Christchurch Bay, submerged 138
Cincinnati Museum Center, Ohio, the geological collections (Museum File 30) 117–20
  current projects 120
  displays 119–20
  foundation 118
  major strengths 119
  principal collections 118–19
  research facilities 119
^{36}Cl, adundance in Drakensberg rocks 180
CLEAL, C.J. *et al*, GEOSITES – an international geoconservation initiative 64–8
cleavage, Charnian, Precambrian or Cambrian? 228
Clee Hill geological interactive model 83
Cleeve Common, critical exposures now poorly exposed 90–1
Cleeve Common initiative, Gloucestershire Wildlife Trust 90–2
cliff and platform geology, Portreath 151–3
  cliff slumping and failure 152
  cliff stabilization 151, *151*
  fault structures 153
  first harbour 153
  raised beach 153
  structural relationships 152
  work to prevent further slumping 152
climate, and nearest living relative (NLR) to fossil plants 24
climate models, tested by palaeoclimate modelling 25–8
Cloos, Hans, graphic diagrams 52
Clypeus ploti 92
coal seams, pyritous, spontaneous combustion and sulphur formation 158
coastal erosion
  Beachy Head 10–11
  Crackington Haven, depletion of shingle ridge threatening the cliff 164
  pining for danger 49–50
  receding coastlines, media obsession with 8
coastal protection, Runswick Bay to be 'saved' 88
Coelophysis 237
Coelophysis bauri 235
Collecting, 1840s style 239–40
collections, grants for researching and cataloguing 124
COLLINS, J.S.H., crab claws (Fossils explained 25) 114–17
Colombia, reducing earthquake effects 43–4
colonial corals 187–90
  medial growth strategy 189, *189*, 190
  peripheral growth strategy 188–9, *188*, 190
  size 190
  some encrusters 187
  switching strategies 190
Common Agricultural Policy, a threat to SSSIs 173
Community 3–5, 43–6, 83–6, 123–5, 165
Comprehensive Test Ban Treaty, tested 42–3
Compressiphyllum 187
computer climate models, for prediction of climate change 29
Conchidium knighti 19
Confuciusornis dui, with horny beak 216
Confuciusornis sanctus 216
Congo Craton, Otavi Group, late Proterozoic glacial interval 55
conodonts
  abundance of 180
  Slave craton 18
conservation
  Cheddar Gorge protection work complete 50
  rock clearance, potentially damaging 50–1
  clutter factor - and a mild retraction 134
  don't move the beach 204
  the ill-luck of the Irish 130–1
  Irish, theory and practice 131–2
  see also GEOSITES
continental crust, modern 178
continental crust growth of and superevents in the Earth's mantle 101
continental drift, political 120
continental flood basalts 178
  Siberian 16
  see also Deccan Traps
continental interiors, Mesozoic, model-data disagreement 29
controversy, Upheaval Dome, Utah 129–30
convection, whole-mantle 82
Copper in Cyprus (let.) 59
coprolite, theropod, containing bone fragments 237
coral-stromatoporoid bioherms 191–2
Corallimorpharia/Actinaria complex 185
corals, Palaeozoic: their evolution and palaeoecology 184–93
  deeper shelf faunas 192–3
  fasiculate 191
  geological history and phylogeny 184–6
  no mutualistic relationship with algae 193
  palaeoecology
    colonial corals 187–90
    distribution 191–3
    growth rates and size 190
    solitary corals 186–7
Cordaites tree-trunks, British Coal Measures 106–9
  how were the tree trunks preserved? 109
  occurrence of fossil trees 107–8
  preservation 108
  succession 106–7
Cornwall
  tin mining revival in 46
  tin revival in 46
  would like their 'Ice Age boulders' back 48
Correspondence 22–3, 59, 103–5, 141–2, 183
cosmic spherules 58
cosmogenic isotopes 180
Countryside Council for Wales, *The Making of Wales* 86
County Wildlife Trusts 39
crab claws (Fossils explained 25) 114–17
  callianassids (mud shrimps) 116
  chelae 116
  finger dentition 114
  from the London Clay, Isle of Sheppey 114
  lobster claws 116
Crackington Haven
  depletion of shingle ridge threatening the cliff 164
  S.O.S: Save our Stones 205
Craterophyllum 186, *187*
Crenatosiren olseni 78
CROSS, T., Once called basalt (let.) 23
cross-course
  defined 152
  mined for copper, Portreath 152
Crotalinae (snake), presumed migration routes into Europe *215*

crustal growth, and the accretion of islands arcs 139
crustal melting 139
Cryolophosaurus, choked to death 237
Cumberland Geological Society, Charles Edmonds Prize (1999) to Dick Clark 51
Curvolithus 16
cycling the solar system 83
Cyclomedusa cf. *davidi* 232, *233*
Cyclomedusa cliffi 231
Cyclomedusa davidi 231, *232*
Cystiphyllum 186

dacites 225
Daddyhole Limestone *192*
Daily Telegraph A-Z of Science 5
dam site, and foundation, Three Gorges Dam 30–1
dams
  concrete gravity 31
  Roman, across the River Frome 47
De Lank Granite 177
Dead Sea
  affected by water extraction from River Jordan 7
  increased salinity means decreased evaporation 100
Dead Sea Rift (African–Syrian Fault zone), assessing seismic activity and earthquake risk 5
Debates 2–3
Deccan Traps, relict mantle plume 179
Deception Island volcano, tephra from may be in Falkland Islands peat 62
deformation
  Acadian 228
  Charnian event 228–9
  polyphase, Cornwall 151
Deiracorallium 187
delamination, lower-crust 139
dentition
  manatee 78–9
  theropod dinosaur 236–7
'Denudation of Carboniferous Limestone', Cheddar Pass *15*
'Derbyshire Grit' 175
descending slabs, seismic discontinuities and whole-mantle convection 82
DEVON, E., Yes, there is a geological Millennium (let.) 142
diamonds
  non-alluvial, new source 180
  placer 143
Diaulax feliceps 114
Diaulax oweni 114, 116
Dibunophyllum bipartitum 191
Diggers remembered 96–7
dinosaur footprints 89
  Brazil, preserve or waste? 6
Dinosaur Society 92, 170
dinosaur trackways
  in other areas 103
  theropod trackways 236
  Uzbekistan-Turkmenistan-Tadjikistan borders 102–3
dinosaurs 47
  carnivorous
    largest 125
    largest in France 125
  dinofool 125–6
  dinosaur meets Government 49
  mad on 23
  Tracking dinosaurs, travelling exhibition 132–3
  under stress 86
  Weather forecasting for 24–9
  see also theropod dinosaurs
Diplocraterion 20
Diplodocus 216
disaster coverage, to be compulsory in Italy 46
'Discovering Dorset' Series, *Fossils*, Richard Edmonds 123–4
DODGSHON, R.A., HAMBREY, M.J., MALTMAN, A.J., Still geology at Aberystwyth (let 22
Dokophyllum 186, 187
dolerite intrusions, providing roadstone 112–13
The Dome, what's in it for us? 12
domichnia 197
DOMNING, D.P., Sirenians (seacows) (Fossils explained 24) 75–9
Don, River, Russia, drains to Black Sea submarine canyon 94
Doncaster, the Earth Centre 167–8
DONOVAN, S.K. and PICKERILL, R.K., trace fossils (4), borings (Fossils explained 26) 197–200
Dorset County Museum, celebrating the Earth's 4.5 millionth millennium 4
DOYLE, P. and BENNETT, M.R., Bluewater shopping centre, Kent, a tale of wasted opportunity (let). 141–2
Drakensberg escarpment, a retreat rethink 180
driftwood, bored by *Teredo* 199
Dromaeosaurus albertensis 236
Dromaius 100
Dromiopsis 116
Dromiopsis granulata 115
Dry Stone Walling Association 132
dry stone wall(s)
  modern repairs to 8
  stretched across slide shear zone 218, *218*
Dublin
  a further paving controversy 84
  the Oscar Wilde sculpture 72–5
ductility, of continental crust 178
Dugong dugon 75
dugongines *78*
  adaptive radiation of 77
dugongs 77–8
Durdle Door, formation of, Avril Primus 93–4
Durlston Bay, Jurassic–Cretaceous boundary, potential GEOSITE *67*
Durness Limestone 93
Dusisiren jordani 76

Earth
  the age of 94
  geomagnetic field 8
  snowball Earth, a late Proterozoic glacial interval 55
'Earth Alert', a Festival of Geology 170
Earth colliders, potential 162–3
earth sciences, in Ireland 85
Earth Story (BBC 2) 50
earthquake metaphors, used by Salman Rushdie 89
earthquakes
  and Boston, good and bad news 122–3
  and the destruction of Mediterranean Bronze-Age civilizations 3
  Japanese scientists advised to change prediction techniques 47–8
  Los Angeles region 17
  in near-surface faults 43–4
  vulnerability of transport to 83–4
  websites for 210
  see also named earthquakes
Earth's core, inner core, some curious properties of 55–6
Earthwise[TM] guides, some free to *Geology Today* readers 84
East Pacific Rise
  MELT (Mantle ELectromagnetic and Tomographic) experiment 82
  melt zone beneath, hypotheses regarding 82
Ediacaran fauna, and comparable fossils 230–1, 233
Edinburgh
  Our Dynamic Earth 124
  quality stone 175–6
Edinburgh Geological Society
  Discovering Edinburgh's Volcano 168
  Hermitage of Braid and the Blackford Hills 168
Edmontosaurus 132
Edrom, Berwickshire, Tournaisian plant petrifactions *66*
education
  Australian researchers in UK Universities 125
  Earth Science In-Service Training at Keele 173–4
  Geology Today, new financial sponsor 2
  geology on the Web 98–9
  learn about geology teaching at Geoscience Education, Australia 44
  RIGS and Keystages 2 and 3 39
eggs, double-shelled and stress 86
Egypt, spinosaur discovery 58–9
electronic publishing, some pitfalls 212
elvan (def.) 155
Empedocles 89
Endpiece(s) 8, 49–50, 128165–6
engineering geology, in China, The Three Gorges Dam of the Yangtze River 30–3
English, most pretentious use of 37
English Nature 51
Entobia 198, *198*
Entobia laquea 198
Entrada Sandstone, crumpled beds 130
Eoraptor 237
epitheca and holotheca 186
Eriphia gonagra xaymacaensis 115
Erlikosaurus andrewsi 235
erosion/denudation rate, and cosmogenic isotopes 180
escorias 58
Etches, Stephen, amateur geologist, work not written up 87
eurypterid, Upper Carboniferous, Writhlington Geological Nature Reserve 216, *216*
evaporation 158
evaporites 24
Exhibitions
  Journey to the Centre of the Earth 167–8
  Tracking dinosaurs 132–3
extinctions 58

'fairy stones' of Scotland 23
Falkland Islands, tephra in 62–3
Farallon Plate 139
faults 89
feldspar dissolution, higher in the lab than in the field 58
felsite, for bus lanes, sources of 113
Fencepost Limestone, used for fenceposts and foundations 84
Ferrar Large Igneous Province, East Antarctica 182
fieldwork safety 155–6, 205
Flandrian Transgression 137, 138
flint 111
flood hazard, and the Three Gorges Dam 33
flushing technique, for Yangtze Gorges reservoirs 32
fodinichnia 197
foraminifera, disparity between fossil and molecular data 122
FORD, T.
  The Precambrian fossils of Charnwood Forest 230–4
  and WALTHAM, T., Upheaval Dome, Utah 129–30
FORSTER, A. *see* WALTHAM, T., and FORSTER, A.
fossil trees
  lower leaf, High Main Post Sandstone 106, 107–8
    conditions for preservation 109
    connection with a mineralized fault 109
    orientation of 107
    preservation of 108
fossils
  described 203
  Kimmeridge Clay 87
  a personal view 92–3
  Precambrian, of Charnwood Forest 230–4
  Russian, not exported 47
  see also Fossils explained; trace fossils
Fossils explained 75–9, 114–17, 197–200, 234–9
Fossils in folklore, fossil folk (let.) 23
Foxemys 47
France
  Archédrome de Bourgogne, provides journey breaks 209–10
  Fox-Amphoux, Provence, *Variraptor* found 47
Francis Creek Shale 3
Frasch process 158
Frechastraea 192
Frosterley Marble 191, 193
fullerenes, at the P/T boundary 182–3

Galathea strigifera 116
Galilee, Sea of, fresh water, and salinity 82–3
Gallimimus bullatus 235, 236
gamma sulphur (rosickýite) 158
Gargantuavis 47
garnet jewellery 34, 37
garnetite layer, in the lithosphere 137

garnets (Minerals explained 26) 34–7
an index mineral in Barrovian zonation 35
chemistry and structure of 34–5
pyralspite and ugrandite series 34–5
curation 37
distinguishing features 35
environment of 35–6
industrial uses 37
simulated and synthetic 37
where found 36–7
YAG and GGG 37
gases, venting through fissures, Lake Taupo floor 13
Gastrochaenolites 198, *198*
gem markets, Mogok and Kyatpyin 148–9
gemstones *see* ruby mines of Mogok
Geo-networking 98–9, 135–7, 210–13
web reliability (or not) 212
geobikes 45
geobreaks, French 209–10
geochemical analysis of tephras, allows matching with eruptions 61
geochemical models, of the Mesozoic 28
Geodigest 16–22, 54–9, 100–3, 137–41, 177–83, 213–16
GeoDiscworld 33
Geographical Association, *Dark Peak* and *White Peak* 97
geological conservation, a 'nice' definition 40
Geological Conservation Review (GCR) 64
geological nomenclature, priority rule 214
geological record, and past climates 24
Geological Society of Cornwall, seeks funds for Peach memorial 4
geological structure maps 52–4
geological trails, Whitbarrow revealed 51–2
geologists, American, important role in the Scientific Societies 123
Geologists' Association
Fieldwork code 54
Millennium Meeting 170
Russell Society 170
The Peak District (Guide No. 26) 97
The Geologist's Directory, retargeted 124–5
geology
for 2000 83
changing, represented in roads 110–11
depressing 220
entente - or not 213–15
hidden at Portcullis House! 6
on the Internet *see* Geo-networking
is it not environment? 44
not recommended 15
Parliamentary 176–7
in society, helping wallers 132
and the Three Gorges controversy 33
twisted 8
urban, confused (let.) 141–2
of wine-growing areas 84–5
Geology Today
Earthquakes and Volcanoes will be back 90
new financial sponsor 2
a wandering time-scale 128
GEOSITES – an international geoconservation initiative 64–8
framework case studies 65–7
Caledonian igneous history 67
Carboniferous palaeobotany 66
Upper Jurassic–Lower Cretaceous stratigraphy 67–8
GEOSITES in Great Britain 65
methodology 64–5
project organization 65
geothermal power plant, environmentally friendly, New Zealand 172
geovandalism
an open letter 54
Riversleigh, Queensland 203
see also Hook Head, Co. Wexford
gessoso solfifera (Italy) 158
Geyornis newtoni, extinction of human-induced 100
Ghaub glaciation 55
Giant's Causeway, unsympathetic signing 134
Gigantosaurus 125
Gilgamesh, Epic of 94
glacial erratics 203
glaciation, and the late Ordovician mass extinction 180–1
Glauconitic Marl 214
Global Positioning System (GPS) tracking stations 5
global warming, and Venice 48
Gloucestershire Wildlife Trust 90, 92
Glyptarus acanthochirus 115
Gnathichnus 200
God, why did you choose Greenwich? 29
God's Funeral, A.N. Wilson, anguish of scientific advances 89
Golan Heights, water from 83
gold 143
graben, formed by Ainthorpe slide 217–18, *218*
Gramscatho Basin 151
Grand Staircase-Escalante National Monument, restrictions on scientific research 89
granite
Black Indian 72, 73
charnockite, southern India 74
Cornish 175
Correnie pink 175
many uses, Portreath 155
orange, Xianen 84
porphyritic 154, *155*
white 175
two-mica 177
weathered, strength of 31
'granites' 69
gravitational overflow hypothesis 178–9
gravitational wobble, planet orbiting Tau Bootis 202
Great Barrier Reef, will crumble due to global warming 128
Great Glen Fault (GGF), depth of 21–2
Great North Road 112
Great Whin Sill 112
Greenhorn Formation 84
Greenwich Meridian
the French want their own 162
a shifting site 169
Grewingkia 187
greywackes, New Zealand, Australian match 172–3
Grimley Andesite *226*
autobreccia zone *224*, 225
extrusive domes 'frozen' during emplacement 225
grossular 34, 36
Guides *see* British Geological Survey; Geographical Association; Geologists' Association

HALL, V. *see* HOLMES, J., HALL, V. and WILSON, P.
Halysites 188
HAMBREY, M.J. *see* DODGSHON, R.A.
Hanging Rocks Formation *222*
earliest unit containing true conglomerates *223*, 228
hard-rock mines, Mogok 147
hardness, of garnets 35
Hawaii, lava bench collapse 204
heat transport, modelled, Jurassic 29
Hekla, Mount, rhyolitic tephras recognized in British peat 61
H3 event
and the Bronze age archaeological record in Britain 61
greatest post-glacial eruption 61
H4 event, one of most widespread ash layers in British Isles 61–2
Heliolites interstinctus 189
Heliolites megastome 187
Heliophyllum halli 186
helium 128
helium-3 anomaly, Eocene 21
Herrerasaurus ischigualastensis 235
hessonite (essonite) 34
Heterocorallia 185–6
Heterophentis 186
Hexaphyllia marginata 185
HIGGIT, D., The Three Gorges Dam of the Yangtze River, Another view (let.) 104–5
High Main Coal 106, 107
High Main Marine Band 106
High Main Post, fossil trees in lower leaf sandstone 106
HOLMES, J., HALL, V. and WILSON, P., Volcanoes and Peatbogs 60–3
Holmophyllum 187
Holophragma 187
Homalophyllum 187
Homalophyllum ungulum 186
Homola 116
Homolopsis 116
Hook Head, Co. Wexford
collecting vandalism? 131–2
different theory and practice at (let.) 183
Hopton Wood limestone 175
horticulture, use of sulphur in 159
Hudson, Mt, no tephra with same geochemical signature in Falkland Islands peat 63
human rocks 89
hyaloclastite breccia 226
Hyas 116
Hydrodamalinae 78
hydrogrossular 36
hydrothermal reaction, Mogok rubies and spinel 144–5
hydrothermal vents
along the South West Indian Ridge 58
along the Southeast Indian Ridge 21
Jurassic community 138–9
'steady-state' and 'event' plumes 20
Hylaeosaurus 234

ice, and Lake Wisconsin 122
Ice Age, in the Peterborough area (Cool Peterborough) 44–5
'Ice Age Cincinnati' 119
ice blocks, cometary, bombarding the Earth 2–3
ice-albedo feedback, extreme example 29
Iceland, partial record of past volcanic activity, British peat bogs 61
Iguanodon 234
IMAX cinema, London, earthquake proof 164–5
Incorporated Research Institutions for Seismology (IRIS), on the Web 98–9
India
nuclear tests 42
tracing Precambrian fossils 56
Indus River, causing a tectonic aneurysm 43
Inferior Oolite 90
Ingenia yanshini 237
integration (def.) 190
Inter-Tropical Convergence, Jurassic 28
International Union of Geological Science (IUGS), GEOSITES initiative 64–8
interplanetary dust, and a helium-3 anomaly 21
interpretation panels, Charmouth 85
Iota Horologii, with a circling planet 163
Ipswichian Stage 45
Ireland
earth sciences in 85
Hekla H4 event, and reduced growth in oaks 62
Hook Head, collecting vandalism? 131–2
iridium anomalies, P/T boundary 101
Irish Peatland Conservation Council (IPCC) 130–1
warning on failure to list peat preservation sites 130
The Irish Scientist (1998 Year Book) 85
iron-60 (radioactive), in South Pacific sediment core 164
islands arcs
processes making accretion a possibility 139
wrong composition for accretion 139
Italy, Venice now rising 48
Itineraria, Roman manual of road construction 110–11
Ives Head Formation *222*, *223*
Ivesheadia lobata 231, *232*

jadeite 143
Japan
drilling into Unzen volcano 171
first basal ichthyosaurs 7
scientists advised to change prediction methods 47–8
The Great Hanshin–Awaji Earthquake and Nojima Fault Museum 9–10
Jeholodens jenkinski 88
Jerusalem, castle walls 162
Jerusalem Gold Marble 162

Jerwood Foundation/ Museums and Galleries Commission Cataloguing Scheme 124
jewellery industry, sulphur used in 159–60
JOHNSON, G.A.L., *Cordaites* tree-trunks in the British Coal Measures 106–9
Journey to the Centre of the Earth 167–8
Jupiter, satellites with rarified atmospheres 141
Jurassic Coast Project Dorset 85
Towards an Education Strategy 150
Jurassic limestone 111

K/T bolide 21
Kaapvaal craton, oil in fluid inclusions 102
Kabaing pluton 144
Kayenta Sandstone 129
Keeping the Seas at Bay, WWF 8
KENNETT, P., Teaching the Dynamic Earth 173–4
kerbing
from igneous rocks 112
Kentish Ragstone 111
Kerguelan, ups and downs of 127
Keteidorus 19
Kilauea Volcano, continuously-recording data-collecting system, effectiveness demonstrated 83
Kilbuchophyllia discoidea 185
Kilbuchophyllida 184
kimberlite pipes, Slave craton 18
Kimmeridge Clay 87
KING, R.J.
the garnets (Minerals Explained 26) 34–7
sulphur (Minerals explained 27) 157–60
Kinneret, Lake *see* Galilee, Sea of
Kionelasma 187
Kirkpatrick Basalt, distance travelled by lavas 182
Kishinev, Moldova, Sarmatian snake skeleton 215
komatiite, a source of diamonds 180
Kopp, Karl-Otto, geological structure maps 52–4
Kullingia concentrica 16
Kyrgyz Broadband Seismic Network (KNET), under pressure 164

L1 Lagrangian, Triana satellite at 4
lagerstätten, Mazon Creek 3
land shark hunting techniques, large-skulled theropods 238
landforms, not so friendly fire! 93–4
landslides
along banks of Yangtze River 32
large continental Baga Bogd 181–2 Tsergo Ri 182
see also Ainthorpe slide
large igneous provinces (LIPs), CAMP the largest 178
larvikite 175
Blue Pearl Granite 72, 73, 74
LASMO Geological Challenge Award (1998), to *Rock and Landscapes of Huddersfield: Guide to the Geology of Huddersfield* 5
lava bench collapse, understanding the process 204
leaching, producing laterites or bauxites 24
leaves, shape, size and structure, as palaeothermometers 24
Ledmore Marble 93, *93*
Leicester City Museum, Charnian fossils 231
Leinster Granite, boulder for Oscar Wilde sculpture 74–5
lepidolite 144
Lethiscus 177
Lias 111
Lias limestone 166
limestone
as a building material 51
Eocene pelagic, and a helium-3 anomaly 21
Irish 175
see also named limestones
limestone pavement 52
Lincoln, Roman columns, of Derbyshire sandstone 87
Linyaungui Mine, Mogok Stone Tract 145, 147
lithosphere, oceanic descending, is it impeded? 137
formation of 82
Lobocorallium 187
LOCKWOOD, A., Millennium geology project (let.) 103
Loihi Seamount, hydrothermal system deposits 22
London, to be saved from drowning by boreholes 88
London Clay, collecting, 1840s style 239–40
Long Craig Middle Limestone 191
Long Valley Caldera, California, magma chamber remains elusive 45
Lop Nor earthquake 164
Los Angeles
greater danger for 17
more to fear from blind thrust-faults 89
Lower Chalk 214
Lower Hawes Limestone 191, 193
Lunar Prospector, information obtained 59
lunar samples, nitrogen not from Sun 181

Macadam, John, choice of road, finishing surface 112
Macculloch, John, a neglected giant of geology 10
mafic intrusion, layered, Bushveld Complex 17–18
magmatism, and the closure of the Iapetus Ocean 67
Magnesian Limestone 167
Majungatholus atopus 236
MALTMAN, A.J. *see* DODGSHON, R.A.
mammals, land, largest 125
Man as a geological agent, the Ainthorpe slide 217–20
manatees 78–9
eating freshwater vegetation 78
mantle plumes
origin of 54–5
seen by seismic tomography 179
Maplewell Group *222*, *223*
active volcanic centres 224–5
correlation with other Ediacara-type faunas 227
processes occurring during deposition *226*
raised pyroclastic content 224
maps 52–4
marble, Mogok 144
'marbles' 69
marcasite 109
marker horizons 221
MARKS, A., Interpreting geology at Portreath, Cornwall: a resource for geological education 149–58
Mars
could surface material from kill us? 4–5
equivocal evidence for life on 42
topography revealed 126
unseen life revealed at last? 87–8
MASON, R.
The Three Gorges Dam of the Yangtze River, Engineering Geology in China 30–3
see also YAFEI, G. and MASON, R.
mass extinctions 178
end-Permian 16
late Ordovician 180–1
P/T boundary 101
Mazon Creek experience 3–4
Braidwood assemblage 3
Essex assemblage 3–4
medicine, use of sulphur in 159
Mediterranean, fall of the Bronze-Age civilizations 3
Mediterranean Sea, evidence for drying up of 94
Meetings Reports, RIGS: where do we stand 38–9
Megalosaurus 132, 234, 238
megalosaurus
definitely 89
or whatever? 88–9
Megiddo, destruction of 3
Mendip Hills Joint Advisory Committee 51
Mercia Mudstone *221*
Mercury 216
mesenteries 185
defined 185
Mesozoic 29
climate of 25
palaeocontinental reconstructions 28
metamorphism, greenschist facies 228
Metcalf, 'Blind Jack', of Knaresborough 112
meteorites
ALH84001, life on Mars, or not? 42
Dar al Gani 262, fragment sold 126
a return to space? 49
unaltered fossil in K/T boundary sediments 101
microborings, *Rogerella* 198
microdeformation features, Bushveld quartz 18
microdiamonds 180
micrometeorites 58
national survey 83
Micromount Symposium 206
micromounts described 206
microturbidites 138
mid-ocean ridges 20, 21, 48–9, 58
and formation of new lithosphere 82
Middle East, observing changes in 5
Midlands Microcraton 229
migration pathway, between Pacific and Atlantic biological communities 58
Mile End Spring (Tower Hamlets) 80
Military Road (Newcastle-Carlisle) 112
Millennium projects 83, 104, 124
Bath Geological Society (let.) 142
Ravensbourne Geological Society projects (let.) 103
Miller, Hugh 23
Millstone Grit 166, *167*, 177
mine shafts, beneath houses 126
Minehead, the disappearing sands 86
mineralization phases, fossil tree trunks (Durham) 108
Minerals Explained 34–7, 157–60
Miniature Autonomous Plume Recorder (MAPR) 21
mining, for rubies, Mogok Stone Tract 145–7
Miosireninae 78
Mithrax 114, *115*
Moenkopi Formation 129
Mogok Stone Tract, Myanmar 144–7
Monserrat, Soufriere Hills eruption, websites 211
Monuments 96–7
MOODY, R., On the Millennium 170
Moon, the 163
30th anniversary of first landing 165
discoveries made by Lunar Prospector 59
no Soviet nuclear explosion on 163
tenuous atmosphere, re-supply of elements? 216
Moorowipora chamberensis 184
MORETON, S., Different theory and practice at Hook Head (let.) 183
Morrison Formation 215
mosasaurs
in Antarctica 163
the shattering truth 96
movement downwards, Walsall and Granada 126
Much Wenlock Limestone 191–2, *192*
mud, from Arikikapakapa, New Zealand 172
Multiple Store, for those who have everything 80
mummies, frozen, El Misti crater 8
Museum File 117–20
museums
journeys need geobreaks 209–10
Cincinnati Museum Center, Ohio 118–20
Dorset County Museum 4
Leicester City Museum 231
Natural History Museum 124, 135
Neodani Fault Museum 10
Nojima Fault Museum 9
Ulster Museum, Belfast 132–3
Mussenden Temple, cliff stabilization complete 7–8
Myanmar, the ruby mines of Mogok 143–9
gemstones mined from *byon* 145
geology of Mogok 144–5
Myojin Knoll submarine caldera, active volcanogenic massive sulphide deposit 141

NAISH, D., Theropod dinosaurs (Fossils explained 27) 234–9
Nanga Parbat, result of a tectonic aneurysm 43
nanobes 87–8
Natica castrenoides 199
National Portrait Gallery 220
National Scheme for Geological Site Documentation (NSGSD) 64
natural disaster, 1998, death and disaster 47
natural hazards, website useful 211–12

Natural History Museum
adult programme 1999 124
Website 135
natural stone, distribution in western Europe 68–71
abundances of 70, *70*, *71*
number per unit area and number per capita 70–1
caveat 71
data and classification 69–70
Navajo Sandstone 129
Nawata ruby 148
Near-Earth Asteroid Rendezvous (NEAR) spacecraft, late in orbiting Eros 48
near-Earth objects (NEOs), detection of an obsession in USA 5–6
Nebo Granite 208
Necrocarcinus sculptus 114
Neocallichirus peraensis 115
Neodani Fault Museum 10
Neovenator salerii 236
nephrite jade 72
British Columbia 73, 133
New Madrid Seismic Zone (NMSZ) 216
New Zealand
Lake Taupo at last 12–13
meteor explosion 163–4
Micromount Symposium 206
Wellington sits on the Wellington Fault 5
News & Comment 9–15, 50–4, 90–7, 129–35, 166–77, 204–10
Noah's Flood: The Genesis Story in Western Thought, Norman Cohn 93, 94
Noah's Flood: The New Scientific Discoveries about the Event that Changed History, William Ryan and Walter Pitman 93, 94–5
Nobi Earthquake 10
Nojima Fault 9
Nojima Fault Museum 9
North Anatolian Fault, causing trouble 203
North Charnwood Diorites *222*, 224
Norway, giant boulders for Runswick Bay 88
Notopocorystes [Pseudoraninella] muelleri 114
Notopocorystes sensu lato 114
Nottingham, today's cave-dwellers 46
NOWELL, D.A.G., 0° Longitude: a shifting meridian 169
Nubian Sandstone 20
nuclear explosions
detected, but not completely 42–3
vs. mining, efforts to distinguish between earthquakes and nuclear explosions 45–6
nuclear-waste repository, Australia 127
Numidiaphyllida 185

oceans, are they disappearing? 202
Oichnus, produced by predatory organisms 199, *199*
Oichnus paraboloides 199
Oichnus simplex 199
oil
even older (let.) 142
in fluid inclusions 102
OKADA, H.
Deep scientific drilling into Unzen volcano 171
The Great Hanshin–Awaji Earthquake and the Nojima Fault Museum 9–10
Onychophyllum pringlei 186
Oort cloud, impulsive perturbation of 21
open-pit mining, Mogok, Myanmar 146
Ordnance Survey 112
marking the Greenwich Meridian for the Millennium 169
Organ Rock Shale 129
Osborne, Danny, creator of the Oscar Wilde sculpture in Dublin 72–5
The Oscar Wilde monument (London) 133–4
The Oscar Wilde sculpture (Dublin) 72–5
different coloured rocks used 72–3
rock sources 73–4
Otavi Group 55
oviraptorosaurs 238
^{18}O:^{16}O ratio 24–5

P/T boundary
an investigation of 101 fullerenes at 182–3
U/Pb dating of Chinese section 16
Pacaya volcano, Guatemala, eruption prediction 46
'pachyostotic' bones 75, 76
pagurids (hermit crabs) 116
Pakistan, nuclear tests 42
palaeobotany, Carboniferous, adpression and petrifaction candidate GEOSITES 66
Palaeofavosites rugosus 189
Palaeoloxodon antiquus 45
palaeontology websites 136
palaeothermometers 24
Pampean Formation, containing escorias 58
Pangaea, central arid zone hypothesis 125
PARKES, M., Irish conservation, in theory and practice 131–2
Parliamentary geology 176–7
Parthenope 115
partial melting, and the asthenosphere 21
pascichnia 197
Peach, Ben 4
Peak District Guides 97
peat, traps and preserves tephra 60–1
peat bogs, and volcanoes 60–3
Peterborough
a future seaside resort? 45
in the Ice Age 44–5
Petit Blanc-Nez Formation 214
Petrocheirus bahamensis 115
Phanerozoic, Ediacaran fossils 16–17
Photo-archives 15, 134–5
photography, and the price of film destruction 165
Phycodes cf. *palmatus 16*
Phycodes coronatum 16
PICKERILL, R.K. *see* DONOVAN, S.K. and PICKERILL, R.K.
picnicking, geology as 128
Pilbara Craton
oil in fluid inclusions 102
unaltered grains in sediments in 141
Pinus sylvestris pollen, decline in associated with Hekla H4 event 62
Pitho 115
Pithonoton scarabaeum 116
Placenticeras, puncture marks 96
placer deposits, fossil 145
Planocoenites 192
plate tectonics, painted by Turner 48
plesiosaurs
in Antarctica 163
ate ammonites 2
plume warnings 2
Plumpton Red Sandstone 175
Pluto
and Charon, different ice 164
planet or not ? 48
redesignation, 'Trans-Neptunian Object No. 10 000? 87
plutonium, in groundwater, attached to colloids 140
Podichnus 200
poekilopleuron 88–9
poetry, identification please 128
poles, Mesozoic, thought to be ice-free 25
POLLARD, W., fossils: a personal view 92–3
Pond Freestone 96–7
Poole Bay, submerged 138
Popocatépetl, Mexico, eruption prediction 46
Portcullis House
geology hidden at 6
site with many geological problems 176–7
Porthtowan Formation 150
Portland limestone 175
Portreath, Cornwall, interpreting geology at: a resource for geological education 149–58
cliff and platform geology 151–3
educational value of 150
fieldwork safety 155–6
interpretation strategies 156
Portreath's building stone 154–5
regional geological setting 151
the RIGS initiative 150–1
site assessment 156
portunids 114
praedichnia 197
Pretoria Group 17
Prior's Close North Opencast Mine, Durham, *Cordaites* tree trunks 106–9
problematica, Charnian fossils 232
'Problems in Modern Science' - comedy 128
ProGEO (European Association for the Conservation of the Geological Heritage), and GEOSITES 65
Propora 188
Propora tubulata 189
prorastomids 76
Jamaica 76
Protomunida munidoides 116
Protosiren fraasi 77
Psarolepis poses a problem 139
Psarolepis romeri, a morphological link? 139
Psephophorus terrypratchetti 33
Psuedovendia charnwoodensis 232, *233*
Puente Hills Fault 89
Purbeck Limestone 96–7, 175
Purbeck-Isle of Wight ridge, breaching of 136–8
pyrite 141
pyrope 34, 35–6
areas where found 36

quartz, clear 144
quartz needles 18
Quote-unquote 8, 48–9, 89–90, 128, 165, 203

radon, Kosovo study terminated 126
Radulichnus 199–200
Radyr Stone 166
RAINEY, P., a geological sundial 174–5
rainfall, calculated for the Jurassic 28
raised beach, Portreath 153
Raniliformis baltica 116
raninids 114
raptors, in France 46–7
Ravensbourne Geological Society Millennium projects
Dinosaur Picnic and Bromley Millennium Bugs 104
letter 103
Red Crag *198*
reducing conditions 158
reef tracts, mid-Palaeozoic 192
corals found in peri-reef environments 192
Regionally Important Geological Sites *see* RIGS
Reticulomyxa filosa 122
Richemont Limestone, for modern martyrs 14
rifting, tensional, Taupo Volcanic Zone 13
RIGS 64
Cornish group 150–1
Cumbria Group, Whitbarrow booklet 51–2
described 150
First UK Conference 38–9
heighten focus on landscape 39
links with education 39
local groups can find funding for projects 92
a mountain top experience 90–2
second UK conference 84
stated aims of 38
RIGS groups 170
Ripon, gypsum dissolution holes and *Through the Looking Glass* 6–7
Riversleigh, Queensland, hard to protect from fossil rustlers 203
road setts, dolerite 23
roads, a geology of 110–13
after the Romans 111–12
further advances 112–13
Roman roads 110–11
water-proofing with heated asphalt 112
ROBINSON, E.
A geology of the road 110–13
collecting, 1840s style 239–40
report on first UK RIGS Conference 38–9
Taking the waters, 1999-style 79–80
Rocellaria (Gastrochaena) rotunda 198
Rock and Landscapes of Huddersfield: Guide to the Geology of Huddersfield, wins LASMO Award (1998) 5
rock varnish, an atmospheric origin for 179
rockhead, Mogok, heavy gemstones at 146
rocks, climatically sensitive 24
Rockwatch 92, 170
Roden Crater, and James Turrell, artist 165
Rogerella 198
Roman roads, construction of 110–11, *110*
Romans, dam geology 47
Rooiberg Group 17–18, *17*
Ross of Mull granite 177
Royal Society/British Association Millennium Awards 83
ruby, variety of corundum 144

The Ruby Mines of Mogok 143–9
the gem markets 148–9
geology of Mogok 144–5
the hardrock mines 147
the open-pit mines 146
ruby and sapphire 144
the shaft mines 145–6
Rugosa 184, 185, 192
fasiculate 188
palaeoecological range *191*
small long-ranging Laccophyllidae 193
Rusophycus 16

salt plug, sub-lake, accounting for Lake Kinneret's increasing salinity 82–3
Salterwath limestone 175
San Andreas Fault 17
the extended version 7
San Francisco, Bay Area, vulnerability of transport system to earthquakes 83–4
sand, sold to Saudi Arabia 47
sand dunes 24
Sandouping Dam 30, *31*
intended to reduce loss of life and damage to property 33
Sandouping reservoir, flushed through in the flood season 32
sandstone, for a cinema floor 8
sapphire, variety of corundum 144
sarsen/carstone 111
Satakunta Sandstone, unaltered cosmic spherules 58
sauropods, necks and feeding habits 216
schillerization 74
Schlotheimorphyllum 186, *187*
Schweizer Strahler 105
Science 42–3, 82–3, 122–3
Science/Technology 2
Scipionyx, a fast food (meat) specialist 47
Scleractinia 184, 185
palaeoecological range *191*
Scleromochlus taylori, relations 202
Scotland: The Creation of its Natural Landscape, Alan McKirdy and Roger Crofts 171–2
Scotland
A landscape fashioned by Geology series 171–2
exploring for diamonds 162
SCRUTTON, C., Palaeozoic corals: their evolution and palaeoecology 184–93
sea-pens, *Charnia* and *Charniodiscus* as 230
seafloor spreading hypothesis, the problem of ancient zircons 21
seagrass beds, role of sirenians in 75, 76, 77
seaweed, *Charnia* and *Charniodiscus* as 230
sedimentary rafts, in breccia matrix 226
sedimentation
in the Sandouping reservoir 31–2
The Three Gorges (let.) 104–5
Sefton Borough Council, selling sand 47
seismic discontinuities
410-m, topography of 183 and descending slabs 82
selensulphur 157
septa (def.) 185
septal insertion patterns, corals 184–5, *185*
shaft mining, Mogok, Myanmar 145–6
Shepshed palmata 232
shocked quartz 101, 208
Shoemaker, Eugene, ashes going to the Moon 163
siderite 141
Sierra Madre Fault 17, *17*
SIMMS, M., Tracking dinosaurs at the Ulster Museum, Belfast 132–3
Sinai succession, understanding the environments 19–20
Sinian biota, in China 57–8, *57*
Sinosauropteryx 237
Sinraptor dongi 236
Siphonodendron 191
Siphonodendron junceum 192
Siphonophyllia gigantea 187
Sirenia, close associates 75–6
Sirenians (seacows) (Fossils explained 24) 75–9
early sirenians, narrow snouts 76
elimination of heavy hind legs 76
importance of incisor tusks 77
restricted to shallow, warm water 76–7
simplified phylogeny *77*
Tertiary history of 77–8
skarn minerals 36
Skomer Island, Llandovery volcanics, potential GEOSITE *67*
Skye, Isle of
even older bones 203
geotermite vandalism, Beinn an Dubhaich 54
slate
Cumbrian 175
Welsh 175
Slave craton
lacking Phanerozoic sedimentary cover 18
hidden in kimberlite pipes 18
Slave Province, Canada, "oldest rocks in the world" 87
Sliding Stone Slump Breccia 224
slope stability, round the Sandouping reservoir 32–3
letter 105
'slow burn' hypothesis 56
Smit, Jan, awarded the Mary Clark Thompson Medal 45
sodium, photo-stimulated desorption of 216
solar system, one beyond our own 127–8
Solent River, disappearance of 137–8
solitary corals
adaptations to substrate *187*
free-living 186–7
genetic programming and shape 186–7
rugose, sizes 190
Solomon, Sean C., Arthur L. Day Prize and Lectureship 45
South Africa
the 200-millennium dome 207–9
Bushveld fails impact tests 17–18
much chronostratigraphic work to be done 90
Vredefort Dome 123
South Charnwood Diorites *222*, 224
intrudes fossiliferous Charnian strata 227
South Crofty Mine 46
South Quarry Breccia *222*, 224
Southport, beach sand sold 47
spessartine 34, 36
sphalerite 157
spherulitic textures 225–6
spinel 144
Spinosaurus aegyptiacus 59
spoil, from mining, reworked 146
Spriggina 232
Springwell Sandstone 175
SSSIs 64
Cheddar Gorge 50–1
Crackington Haven 164, 205
greater protection for proposed 173
open to regional management perhaps 173
Stanton Moor Sandstone 175
Steller's sea cow (*Hydrodamalis*) 78
Stelliporella parvistella 190
Steno, *Prodromus* 94
'*Stetsonosaurus*! 128
STILLMAN, C.
Copper in Cyprus (let.) 59
The Oscar Wilde sculpture (Dublin) 72–5
'Stone Age factory', Elveden near Thetford 162
stone(s)
available for road building 110–11
of the past, naming of 162
stratigraphy
Upper Jurassic–Lower Cretaceous, potential British GEOSITES 66–7
Wal-Mart 166
stromatoporoids
key to 140
morphological terms 140
stylolite (def.) 18
substrates
lithified, lithic and xylic 197
unlithified 197
Suchomimus tenerensis, relationships of 59, *59*
Suess, Edouard, tablet in London to 93
suevite 208
sulphate aerosols, produced by Hekla 61
sulphates 158
sulphur (Minerals explained 27) 157–60
chemistry and structure 157–8
curation 160
distinguishing features 158
environment of 158–9
biological processes 158–9
supergene processes 159
volcanic processes 158
faking 160
uses of 159–60
where found 159
sulphurite 157
Superior craton, oil in fluid inclusions 102
Sutherlandia 188
Swaledale limestone 175
Swanage, Little-London-by-the-Sea 240
Swithland Formation *222*, *223*
burrow structures 232
may be Cambrian 233
Teichichnus in 227–8
syneresis cracks 56
Synroc system, for disposal of nuclear waste, for use in Britain? 7
Syntarsus 237

Tabulata 184, 185
palaeoecological range *191*
taking the waters, 1999-style 79–80
Tanganyika Territory, homemade milling equipment 134–5
Taphrhelminthopsis circularis 16
Taupo, Lake, lake bed explored at last 12–13
TAYLOR, M.A., and CHEAPE, H., Fossil fo'k (let.) 23
tectonic aneurysms 43
tectonic instability, triggering mass flows 224
tectonic processes, Archean 178–9
Teichichnus, Swithland Formation 227–8, *228*, 232, *234*
Telford, Thomas 112
tellurium 157
tension cracks 152
tephra 60
British Isles 60–2
Falkland Islands 62–3
important time signal in peat bogs 61
Teredo 199
Teredolites 199
as an infestation 199
Teredolites clavatus 199
Teredolites longissimus 199
terranes, suspect/accreted 139
Tertiary Island, Crystal Palace Park 40
Tethytheria 75–6
tetrahedrite 157
tetrapods, terrestrial, an earlier landfall 177
Thamnophyllum germanicum 191, *192*
Thamnopora 189, 190
Thecia expatiata 188
theropod dinosaurs 47, 58–9
ceratosaurs 237
coelurosaurs 238
digitigrade 235
feathered 236
Fossils explained 234–9
diversity 237–8
integument 235–6
lifestyles 238
morphology 234–5
teeth 236–7
necks, skulls and heads 235, *236*
neoceratosaurs 237
tetanurans 237–8
THOMAS, B.A. *see* CLEAL, C.J. *et al*
The Three Gorges Dam of the Yangtze River
another view (let.) 104–5
engineering geology in China 30–3
dam site and foundations 30–1
geology and the Three Gorges controversy 33
landslides on the reservoir banks 32–3
sedimentation in the reservoir 31–2
Thringstone Fault 228
thulite 72
Norway 73, 74
time delay, 1999 delayed by 1 second at end of 31 December 6
Titanocarcinus 116
Titterstone Clee 113
TOKARYK, T.
Axel Heiberg Island, government mix-up 206–7
are the agencies failing to protect national treasures? 207
the shattering truth about mosasaurs 96
Tonle Sap 125
topaz 144
Topics 68–75, 194–6, 230–4
toppling boulders, and earthquake recurrence intervals 101–2
Tor Bay Reef-Complex 193

trace fossils 20, 57
borings (trace fossils 4) (Fossils explained 26) 197–200
borers preserved in their borings 197
boring reflects morphology of borer 197
variation in boring morphology 197
Precambrian, looking for 56
Trafalgar Square, the vacant plinth, no contest! 165–6
Trajan, Emperor, travertine base of missing statue 162
Transvaal Supergroup 17
Treatise on Invertebrate Palaeontology, porifera volume 140
Treptichnus pedum 16
Triana (satellite), at L1 Lagrangian 4
Triceratops 132
Trichechus manatus 78
triconodonts 88
trilobites, websites 136
Tswaing Crater 208–9
drilling within 208–9
Tunguska, drilling to provide more information 202–3
turbidites
Ives Head summit *223*
Portreath 151, *153*
turbidity flows, triggered by earthquakes 138
Turkey, too many people allowed to live around Izmit 203
turnpike roads 112
twinlons and *lebins* (mine shafts) 145
Tyrannosaurus rex 125, *235*, *236*, *237*
operatic 203
'Sue', many healed injuries 238

Uca, enlarged major claw 114
UK, and the Atlantic Biogeographical Seminar 131
Ulster Museum, Belfast, tracking dinosaurs at 132–3
unconformities
below Brands Hill Formation *221*
sub-Triassic, Bardon Hill Quarry *221*
Unitary Development Plans, for counties and boroughs 39
Unzen volcano, deep drilling into, phases of 171
Upheaval Dome, Utah 129–30
meteorite impact hypothesis 129–30
salt-blob theory 129, 130
salt-dome hypothesis 129
Upper Devonian, position of Portreath 151
Upsilon Andromedae, planets of 127–8
uraninite 141
Uratanna Formation, Ediacaran fossils 16–17
urtite 144
US National Academy of Sciences
newly elected Earth Science members 85–6
prizes awarded 45
USA
bristlecone pines, frost damage coincides with Hekla sulphate aerosols 61
Dinosaur Valley, and the limestone cowboy 49
eastern, earthquake hazard zone 216
fenceposts and foundations 84
glacial Lake Wisconsin 122
Grand Staircase-Escalante National Monument, restrictions on scientific research 89
lava bench collapse on Hawaii 204
Los Angeles
danger from blind thrust-faults 89
greater danger for 17
toppling boulders 101–2
transport vulnerability to earthquakes 83–4
Yucca Mountain, Nevada
further assessment needed for a possible radioactive waste depository 86
stability of perched boulders 101–2
uvarovite 34, 36
areas where found 37

VALDES, P.J., Weather forecasting for dinosaurs 24–9
Variraptor 47
Variraptor mechinorum 46
Variscan Orogeny 151
Velociraptor 238
Vendia 232
Vindhyan Supergroup 56
virtual georeality 212–13
virtual field trips 213
vitrinite 108
volcanic ash plumes, danger warning to aircraft 2
volcanic complexes,
Charnwood Forest 224–6
cryptodomes and peperites 225–6
Monserrat-type activity 225
volcanic process, and native sulphur formation 158
volcaniclastic sequence, stratified, Charnwood Forest 221–4
volcanism, featuring dome growth 226
volcanoes
eruptions predicted from space 46
rhyolite, Lake Taupo 13
volcano watch, websites 210–12
Volcanoes and Peatbogs 60–3
Vredefort Dome 207–8
in a larger crater 123

Wade, General, road builder in Scotland and North of England 112
Wales, from Precambrian to Pleistocene 86
WALTHAM, T.
avoid the *Natural Phenomena* book series 11
and FORSTER, A., Man as a geological agent 217–20
Lava bench collapse on Hawaii 204
a more spectacular rockfall at Beachy Head 10–11
The Ruby Mines of Mogok 143–9
see also FORD, T., and WALTHAM, T.
water
a problem in Mogok deep mines 147
raising mountains 43
Weather forecasting for dinosaurs 24–9
computer modelling 25–9
mapping the model data 28–9
warm and dry 25
websites 135–7
wedge failure 152
Wenlock Edge, exposures of coral-rich bioherms 193
WEST, G., The Distribution of natural stones in western Europe 68–71
West Melbury Marly Chalk 214
Westminster Abbey, modern martyrs take their places 14–15
What the Papers Say 5–8, 46–9, 86–90, 125–8, 202–3
Wheal Mary, Portreath 152
WHITAKER, J.H.McD., Noah's Flood: What's the evidence? 93–5
Whitbarrow: A Geological Walk Looking at Rocks, Plants and Landscapes 51–2
Whitby Mudstone Formation 217
White Limestone Group *198*
White Rim Sandstone 129
Whittier Narrows earthquake 89
Whitwick volcanic complex *222*, 225
Wilson, James E., *Terrior: The Role of Geology, Climate and Culture in the Making of French Wines* 84–5
WILSON, P. *see* HOLMES, J., HALL, V. and WILSON, P.
WIMBLEDON, W.P.A. *see* CLEAL, C.J. *et al*
wine, geology of wine-growing areas 84–5
Wingate Sandstone 129
Winstanley, Gerrard, formation of the Diggers 96–7
Wollaston Medal, Fitton's found 11–12
Woodend Limestone 191
Worcestershire Sauce, in Mexico 89
worm trails 232, *234*
worm tubes, vestimentiferan 138–9
WYSE, P.N., Fitton's Wollaston Medal found 11–12

Xintan landslide, Yangtze River 32

YAFEI, G. and MASON, R., China University of Geosciences enters the twenty-first century 194–6
Yangtze River, sediment carried 31–2
Yap islanders, large coins 203
Yellow River, dry up through excess water extraction 7
Yonsei University, loss of rock specimens during riots 128
Younger Dryas 95
yttrium 36
Yucca Mountain, Nevada
further assessment needed for a possible high-level radioactive waste depository 86
stability of perched boulders 101–2

zeolites 206
Zig Zag Chalk 214
Zoanthiniaria 185
zoisite 74

EN

ND